



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

the ivory collectors had, when this traveler visited the spot, for eighty years made their best tusk harvest." Associated with the remains of the mammoth, well preserved carcasses of two species of hairy rhinoceros have been found. The last one found was an exceedingly well preserved carcass of a hairy species (*Rhinoceros merckii* Jaeger) discovered on a tributary of the Lena, in 1877. "From the find Schrenck draws the conclusion that this rhinoceros belonged to a high-northern species, adapted to a cold climate, and living in, or at least occasionally wandering to, the regions where the carcass was found. There the mean temperature of the year is now very low, the winter exceedingly cold ($-63^{\circ} \cdot 2$ has been registered) and the short summer exceedingly warm. Nowhere on earth does the temperature show extremes so widely separated as here. Although the trees in winter often split with tremendous noise, and the ground is rent with the cold, the wood is luxuriant and extends to the neighborhood of the Polar sea, where, besides, the winter is much milder than farther in the interior. With respect to the possibility of these large animals finding sufficient pasture in the regions in question, it ought not to be overlooked that in sheltered places overflowed by the spring inundation there are found, still far north of the limit of trees, luxuriant bushy thickets, whose newly expanded juicy leaves, burned up by no tropical sun, perhaps form a special luxury for grass-eating animals." The account of the discovery, by the *Vega* expedition, of several skeletons of Steller's manatee on Bering island, has already been noticed in this journal.

We have read this volume with the greatest interest. It is a model book of travel and research.

HUXLEY'S THE CRAYFISH.¹—This is one of Professor Huxley's most effective works. The crayfish has received repeated attention from naturalists; some of the best memoirs by the most eminent naturalists have been devoted to the natural history, the embryology and anatomy as well as histology of the crayfish, but so far from being a compilation from these authorities, the work before us is a fresh, original study of a well known and most accessible animal, and the subject, as may be expected, is treated in the methods of to-day; not only from a special point of view, but from the modern broad standpoint of the relations of the crayfish to the world about it and to the fossil forms allied to it. Should we want to give one some idea of modern zoölogy in its widest sense, the methods of study and the ultimate questions arising out of any special zoölogical work, we should put this little monograph in the student's hands.

¹ *The International Scientific Series. The Crayfish.* An introduction to the study of Zoology. By T. H. HUXLEY, F.R.S. With eighty-two illustrations. New York, D. Appleton & Co., 1880. 12mo, pp. 371. \$1.75.

Our western and southern streams and wayside ditches or runs abound in these creatures; such is *Cambarus clarkii* (Fig. 1). With one of these crayfish or the more common *Cambarus bartoni* in hand, the student should read this book, identifying all the parts which can be observed without dissection, and then he should verify for himself Professor Huxley's account of its internal anatomy, and then if possible obtain from his own examination some idea of its histology and its mode of development. Then his studies should be comparative. He should, if possible, ex-

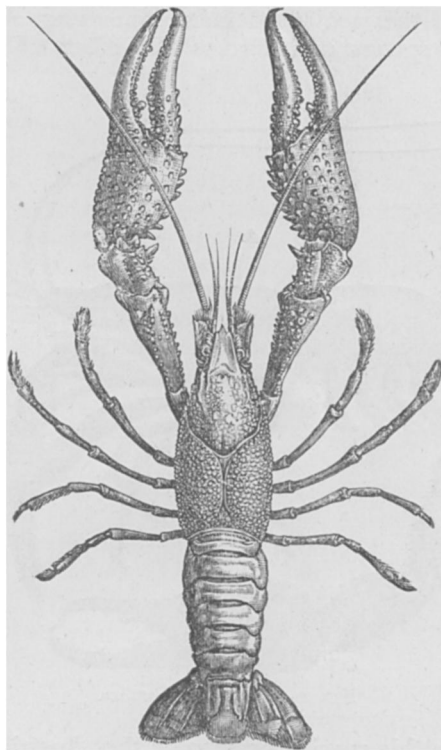


FIG. 1.—*Cambarus clarkii*, nat. size.

amine the prawn (Fig. 2) and other shrimps. He should then compare the mode of direct development of the crayfish with that of the *Penæus* (Fig. 3.), a prawn whose developmental history throws so much light on the ancestry of all the higher Crustacea, since its development is, in a sense, an epitome of that of the Crustacea as a class, for it begins life as a little six-legged Nauplius, then assumes the zoëa phase of most crabs and shrimps, and finally passes into a prawn. Then, with this excellent guide in hand, he should study as well as may be, the fossil allies of

our existing crayfishes, of which the accompanying figures are examples, and we shall see how deeply planted are the roots of the astacine genealogical tree, which extends down into Jurassic strata. Finally we are told by our author that all modern crayfishes have evolved from such forms as the *Pseudastacus*.

And here it seems to us singular that Professor Huxley, while stating his belief that all crayfish have evolved from earlier forms, should not have attempted an explanation of the causes of change of form and of the variability which has resulted in the production of species of crayfish on all the continents. Why did he not avail himself of the published facts concerning our Mammoth cave and blind species, and discuss the effects of darkness and

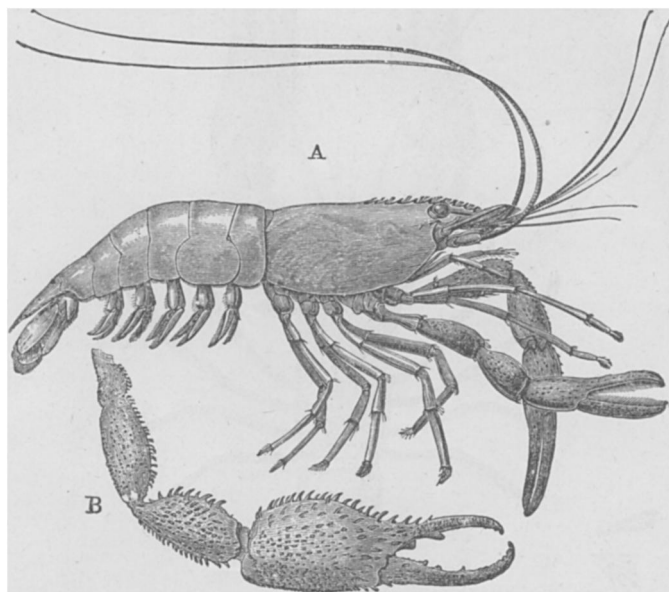


FIG. 2.—Prawn of Jamaica.

lack of food on this species, or even of the Austrian blind form. So also a study of the relations of climatic causes, of the differences in the nature of streams and food supply would have been in place. A little more in this direction would have rendered more defined and circumstantial the author's general remarks on the causes of the evolution of forms so rich in species and varieties as our crayfish, a fact which in this country at least renders their systematic study so perplexing.

There is little, however, to criticize in this as in all of Professor Huxley's works. They are critical as well as broad and philosophical.

We would however venture to take exception to Huxley's con-

ception of the morphology of the carapace, which has long since been shown by Dana to be morphologically a development of the second antennal and mandibular tergites, which grow back so as to cover the thorax. Huxley's "cervical groove" appears, then, to be an artificial line and of no morphological importance. The thoracic tergites being aborted are protected by this large cephalic shield. In the zoëa the shield or carapace is an expansion of the tergal or dorsal part of the consolidated antennal and mandibu-

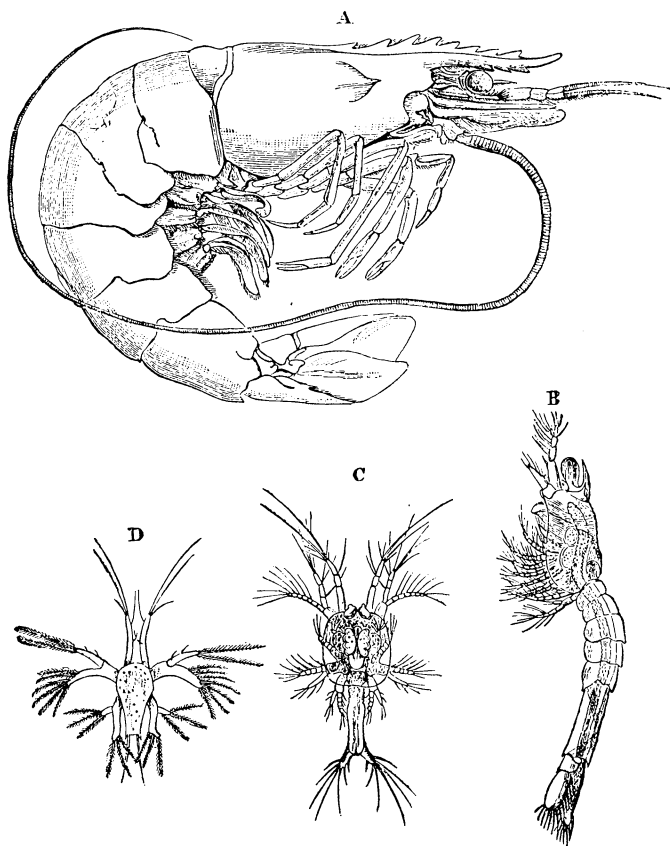


FIG. 3.—A, *Penaeus*; D, nauplius stage C, zoëa stage; B, advanced larval stage.

lar tergites, as his own figures on pp. 281 and 282 would prove; the shield being developed before the thoracic segments appear at all.

So also embryology abundantly proves that the eyes are developed on the antennal segments, and that the eye-stalks of crabs and shrimps are simply functional adaptations occurring after zoëal or larval life. Hence the old-fashioned view entertained by

our author, that the eye-stalks represent limbs, is not apparently well founded. We should therefore regard the number of pairs of appendages as nineteen instead of twenty, though there are twenty segments, the telson representing the twentieth. It is a

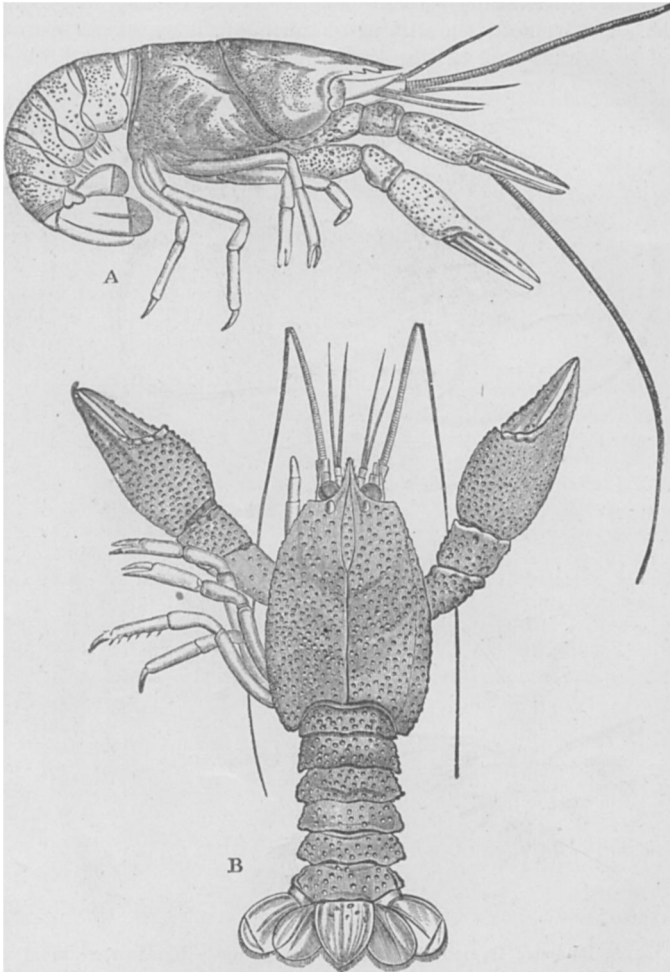


FIG. 4.—Fossil crayfish (*Pseudastacus*).

question whether the presence of an “ophthalmic segment” can be demonstrated. While treating of the nervous system, an opportunity of describing the brain after the researches of Dietl in 1876, is not taken, although Krieger’s more elaborate account of the brain of the crayfish was not published until the present work appeared.